NOTES ON THE PLUMAGE OF SOME BIRDS FROM UPPER SOUTH CAROLINA.[1]

BY LEVERETT M. LOOMIS.

IN THE years I have spent in field study of the birds of South Carolina I have incidentally collected specimens illustrating various phases of plumage. This material I have compared at the American Museum of Natural History, and the notes which follow are the result of this comparison or have been suggested by statements current in the literature.

Buteo borealis.—A moulting specimen, July 3, 1879, has worn rectrices that are grayish brown and numerously banded, and new ones (in various stages of development) that are rufous, with conspicuous subterminal bar of black. In an example (♂ juv., Sept. 25, 1884) of the Western form *calurus*, from Arizona, in the collection of the American Museum, there is a rufous tinge on the tail. In some of the lateral feathers it is slight, but in the majority it predominates. The former specimen shows that the transition from the immature to the rufous-colored tail may be effected at one moult, the latter that the transition may be more gradual. It remains to be determined whether this dual manner of assumption of adult plumage is characteristic in both subspecies or whether the more gradual change is peculiar to the one and the abrupt to the other.

An adult female, Dec. 17, 1881, from South Carolina, approaches *calurus*. It is more typical in respect to intensity of color than some examples in the American Museum, from Arizona, labelled *calurus*. It seems preferable, notwithstanding the established fact of southeasterly migration, to regard this specimen as an extreme dark phase of *borealis* rather than a bird of Western birth. It is a safe rule not to admit a subspecies, supposed to be extralimital, into a fauna upon the strength of a single specimen, unless the specimen typically exemplifies all the characters of the subspecies.

The last, like the first specimen noticed, has a broad subterm-

[1] Unless otherwise stated, the particular locality in each instance is Chester County.

inal bar of black on the tail. In another adult female, Dec. 19, 1878, this is wanting, a few isolated spots and faint traces being the only indications of it. It may be questioned whether this subterminal marking is simply individual, or whether it is an indication of immaturity.

Ceryle alcyon. — In a female taken Dec. 13, 1877, the rufous abdominal belt is complete. This is also the case in eleven specimens in the American Museum obtained at various seasons.

Ceophlœus pileatus. — A male, shot Oct. 11, 1886, exhibits a tendency to extension of the red of the head to the broad white stripe on its sides, there being a dash of this color below the eyes and backward.

Antrostomus vociferus. — The absolute necessity of determining the sex by dissection is strikingly exemplified in a female of this species (April 14, 1888), which has the throat bar chiefly pure white. It is much narrower than is usual in the male. The other markings are not exceptional. There is a nearly similar specimen in the American Museum collection from New York, procured May 31, 1883.

Calcarius pictus. — A female, Feb. 9, 1889, has the lesser wing-coverts deep black with a broad terminal bar of pure white.

Guiraca cærulea. — Wilson in his description of this species says, "The female is of a dark drab color, tinged with blue, and considerably lightest below." More recent writers appear to have overlooked that the female in high plumage exhibits considerable blue coloration, attesting that Wilson even at this day may be consulted with profit in matters relating purely to the technics of ornithology. The following descriptions of two specimens illustrate the higher colors assumed by the female.

♀ *ad.* (Aug. 25, 1885). Crown, rump, jugulum, fore breast, malar region, and lesser coverts, blue; occiput, auriculars, throat and neck all around, scapulars, edge of wing, upper tail-coverts, outer edges of rectrices, except lateral pair, strongly tinged with blue. This specimen is in worn plumage with three rectrices in process of renewal.

♀ *ad.* (May 7, 1891). Top of head, fore part of cervix, throat, jugulum, malar region, rump, lesser coverts, and edge of wing, blue, obscured by brownish tips to the feathers, particu-

larly from the occiput backward; rectrices, except outer pair, edged exteriorly with blue, and alula, primaries, and primary coverts with bluish; upper tail-coverts and auriculars tinged with blue, the former tipped with whitish; sub-apical portions of feathers on breast and sides of neck decidedly bluish; middle and greater coverts tipped with ferruginous.

In brief, the blue in these two specimens chiefly prevails about the head, jugulum, rump, and lesser wing-coverts. If the tips of the feathers were worn off in the second specimen as in the first, the concealed blue would be extensively unveiled and a richer attire would result.

I am constrained to believe that this blue phase represents the adult plumage of the female, and that the plain one generally described in the books is an immature stage, for every season highly colored females have been obtained in numbers fully equal to the adult males of highest feather. Also, plain females and those with but slight traces of blue have occurred in proportion to the more soberly dressed males. Further proof that this high coloration is indicative of maturity is found in the fact that the hornotines I have taken in the fall moult have displayed no sign of it. Failure of sexual vitality has been advanced as an explanation in somewhat similar cases. That such physical change is not the cause in the present instance has repeatedly been proven by dissection and by capture of mated birds. A tendency to assumption of the more showy costume of the male has been observed in *Passerina cyanea*, *Piranga rubra*, and *Dendroica cærulescens*. It is highly probable that parallels are to be found in many if not all species in which the male and female differ widely in color. It is a question whether the variation in these cases may not be individual. Special investigation in each species alone will decide the matter.

An immature male with testes partially enlarged, taken May 18, 1891, has the blue chiefly confined to the sides of the head. In a series, the two females described above would far more readily be picked out as immature males. In the spring of 1890 males in full dress were secured from the outset. The following year only those in brown and blue plumage were obtained up to May 19, the last day search was made. Where the deeper colored plumage was concealed by brown tips to

the feathers, the juvenile appearance of the birds of the second season appeared to be due to a retarding of the process of abrasion, which wearing away of the terminal portions of the feathers is manifest in this species from its first arrival in this locality.

Piranga erythromelas. — There is a marking on the under surface of the wing in the female and in the male in green livery which seems to have escaped general notice, but which renders both distinguishable at a glance from the female or young male of *P. rubra*. It extends from the carpal joint to the exposed shaft of the outer primary, and is about an inch in length and an eighth of an inch in width and olive brown in color. It corresponds to a similar black marking in the adult spring male. In all examples of *P. rubra* I have examined the region of the under wing-coverts is uniform yellow in the female and red in the adult male.

Piranga rubra. — The following description is of a female, with ovary of a breeding bird, taken June 2, 1879. Prevailing color above brownish gray, with touches of olive-yellowish; under surface cream-color, washed with Naples yellow, with a patch of chrome yellow on breast. Three males and a female of subspecies *cooperi* in the American Museum resemble this specimen in their faded appearance.

Helminthophila chrysoptera. — A female from Cæsar's Head, June 16, 1891, shows an indication of albinism in the continuation of the white of the malar region over more than half of the throat and chin.

Helminthophila celata. — In a fall male and a spring female the eyelids are edged with whitish, forming an orbital ring which was very distinct when the birds were in the flesh.

Dendroica cærulescens. — The black feathers of the throat and chin are without white tips in a male obtained Oct. 2, 1888, and the scapulars and interscapulars are distinctly spotted with black, and unwashed with olive green. The whole appearance of the specimen is that of a spring male in high feather. The exterior edges of several of the outer primaries, near their extremities, are, also, whitish, constituting a rather distinct area when the wing is closed. In another October example the dorsal streaks are so heavy and numerous as to present the ap-

pearance of a black patch, nearly as conspicuous as the olive green one in *Compsothlypis americana*. In still another, the crown is thickly marked with black shaft lines.

Dendroica castanea. — In a male, May 5, 1888, the buff on the sides of the neck is continued into a broad cervical collar, streaked with dusky. Another May specimen, also a male, shows indications of a similar collar.

Geothlypis formosa. — Breeding females of this species from Mt. Pinnacle and Cæsar's Head are duller colored on an average than the males. The black, especially, is less intense, and considerably restricted. In some it is nearly wanting on the crown. The brightest females and the dingiest males, however, are indistinguishable.

FURTHER NOTES ON THE EVENING GROSBEAK.

BY AMOS W. BUTLER.

In addition to the records of the range of the Evening Grosbeak (*Coccothraustes vespertinus*), given in 'The Auk' for July, 1892, I am enabled, through the kindness of several friends, to offer some additional notes.

In the winter of 1889–90 Evening Grosbeaks were tolerably common in the vicinity of Ft. Wayne, Indiana. Mr. C. A. Stockbridge, in addition to the two reported Feb. 15, 1890, noted eleven Feb. 16, one March 22, one April 9, and one April 12.

Mr. C. E. Aiken of Salt Lake City, Utah, informs me that a large number of specimens were obtained near Whiting Station, Indiana, in the winter of 1886–87 by Mr. R. A. Turtle of Chicago. To some few of these I have doubtless referred before.

Prof. F. Cramer, Lawrence University, Appleton, Wis., under date of March 14, 1891, says: "Two weeks ago a flock of five Evening Grosbeaks spent a few minutes on a tree in our back yard. They were quietly eating the little crab apples that had not fallen off the tree. Feb. 7 Professor Lummis saw a flock of ten eating the fruit of a climbing bitter-sweet near his house. They did not stay long."